

# 1 Maximising the Impact of Transdisciplinary Research With a Novel Approach: ROMA (RAPID Outcome Mapping)

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Interest in the impact science can have on reducing poverty in the global South. If we understand impact as the “demonstrable contribution that excellent research makes to society and the economy”,<sup>1</sup> the concept encompasses a variety of contributions of research-related knowledge and skills that benefit people and the environment. One reason for the growing interest in impact in this context is research councils’ increasing focus on documenting the social and environmental benefits of science, as indicated by the above quotation from the British research councils.<sup>2</sup> Another reason is that research funding agencies from the private and public sectors are now more interested in social innovations for solving problems on the ground.<sup>3</sup>

According to the Overseas Development Institute (ODI), research can indeed influence policymakers’ horizons, policy development, declared public policy regimes, funding patterns, and implementation or practice (Young 2005). This is promising for those who would like to improve – and prove – the influence that research can have on policy and practice. It is also of importance for better understanding the intended and unintended effects of research.

The relevant questions are: how we can improve impact and how we can assess whether it works.

## 1.1 The need to adapt to complex conditions

There is one answer for both questions: we need new approaches for maximising and assessing research impact. The standard models are inadequate for at least three reasons.

- 1 More information on the British research councils’ “Excellence with Impact” framework, see: <http://www.rcuk.ac.uk/kei/Pages/home.aspx>; retrieved on 4 March 2013.
- 2 Another example is research funded by the European Commission. Swisscore, the Swiss Contact Office for European Research, Innovation and Education, commented a trend towards placing innovation at the forefront: „Realising that Europe leads in basic research, but fails at bringing research results to market, the European Commission (EC) strongly insisted on setting the focus on innovation for the next Framework Programme for Research and Innovation Horizon 2020“. Retrieved 7 March 2013 from: [http://www.swisscore.org/SiteCollectionDocuments/Newsletter/syn\\_syn\\_1302.pdf](http://www.swisscore.org/SiteCollectionDocuments/Newsletter/syn_syn_1302.pdf)
- 3 An example is the 12-year NCCR North-South programme, which is jointly financed by the Swiss National Science Foundation (SNSF), the Swiss Agency for Development and Cooperation (SDC), and the participating institutes. From the beginning SDC emphasised that societal and environmental impacts of research should be assessed and documented; the present report is one of the results of this monitoring.

*First*, we need to adapt to a new and very broad understanding of impact. In the past, research impact was often equated with value creation, aiming at increased productivity and profits. Ultimately, the growth and competitiveness of national economies should be stimulated. Claire Donovan argues that for capturing broad societal benefits, approaches need to go beyond economic data and science and technology innovation indicators. “This entails that metrics-only approaches are behind the times, and that state-of-the-art evaluations of research impact combine narratives with relevant qualitative and quantitative indicators” (Donovan 2011, p. 176).

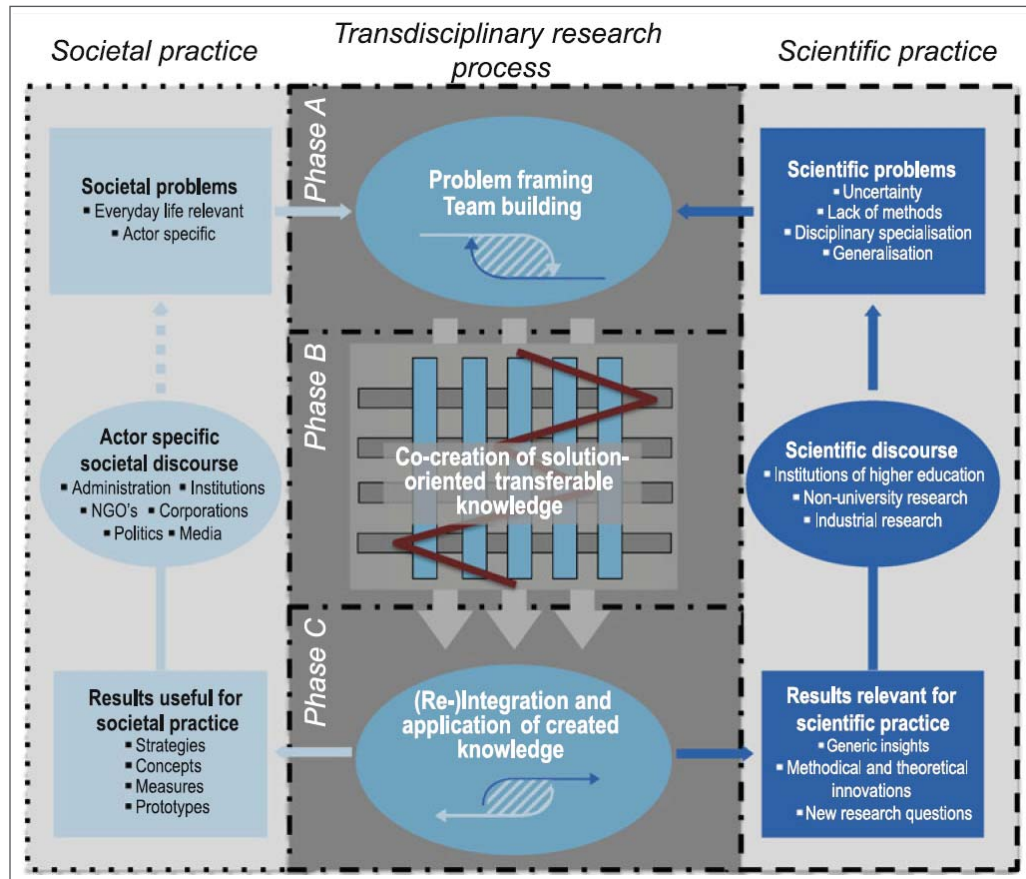
*Second*, assessing the impact of research for poverty reduction requires an approach that takes complexity into account. There are multiple and highly interrelated factors causing poverty. Issues such as migration, violence, health problems, and environmental and social change have social, economic, and ecological roots that are often poorly understood. Policy processes for combatting poverty take place at the global, national, and local levels, and these are not always in line (Leach et al 2012). A broad range of actors intervene in policymaking. Very often, there is no common view of what the problem actually is, and many actors are potentially affected by decision-making (Wuelser et al 2012). There might be different views of how to solve problems, and policy decisions need to be taken under conditions of uncertainty (Datta 2012). Finally, both poverty itself and decision-making for combatting poverty are highly context specific (Honadle 1999). Standard models for assessing research impact are not sufficiently flexible to adapt to these complex conditions.

*Third*, research paradigms that work towards closing the gap between science and society have a high potential for generating benefits for the public. But assessing these benefits is tricky. Indeed, these research paradigms have different labels: for instance, participatory research, interactive or community-based research, policy analysis, etc. (Pohl and Hirsch 2007; Talwar et al 2011). What they have in common is that they work, first, with specific forms of cooperation between researchers and users, second, with the perspectives of the different disciplines involved, and third, with modes of integrating evidence into society and academia (Bergmann 2007). By contrast with standards models that focus solely on measuring the integration of evidence into society, an impact approach needs to capture all three elements mentioned above.

## 1.2 Transdisciplinary research

Working at the interface of science and society, transdisciplinarity is an approach to research that appears promising in this regard. Transdisciplinary research aims to contribute to science in terms of new findings, and to society in terms of practical and acceptable solutions for persistent and complex problems. To this end, it involves academics from different disciplines, as well as non-academic stakeholders such as policymakers, economic actors, and community members. All actors contribute to the research process from the very beginning because “[t]ransdisciplinarity implies that the precise nature of a problem to be addressed and solved is not predetermined and needs to be defined cooperatively by actors from science and the life-world. To enable the refining of problem definition as well as the joint commitment in solving or miti-

gating problems, transdisciplinary research connects problem identification and structuring, searching for solutions, and bringing results to fruition in a recursive research and negotiation process” (Wiesmann et al 2008). The classical conception of a linear process from scientific evidence to knowledge transfer and use of research results is replaced by a process of co-production of knowledge among all actors.



**Figure 1:** Conceptual model of an ideal-typical transdisciplinary research process. (Source: Lang et al 2012, p. 28. Reproduced with kind permission of the publishers and authors)

Figure 1 visualises the three phases of a transdisciplinary research process in a recent review of previous conceptualisations of this process (Lang et al 2012). Lang and co-authors define transdisciplinary research as an “interface practice” that connects societally relevant problems with research questions, thus closely following definitions proposed earlier by Pohl and Hirsch Hadorn (2007), Wiesmann et al (2008), and Talwar and colleagues (Talwar et al 2011). The benefits of such an approach are twofold: it provides new options for solving societal problems, and new approaches, methods, and insights for science. The ideal-typical conceptual model foresees three phases:

1. **Problem framing, teambuilding:** The problem is jointly identified and described from a scientific perspective by academics and from a practical perspective by non-academic stakeholders. It is often challenging to agree on a problem definition that is both researchable and meaningful for science and society.

2. **Co-creation of solution-oriented transferable knowledge:** The second phase is about joint data collection and interpretation. Academic and non-academic stakeholders need to agree on the degree of collaboration in the process of creating knowledge that is both solution-oriented and compatible for different disciplines.
3. **(Re-)integration and application of created knowledge:** The last phase is dedicated to the process of integrating and applying the knowledge in science and society. “As different perspectives, world views, values, and types of knowledge are integrated over the course of the entire transdisciplinary research process, this phase is not a classical form of knowledge transfer from science to practice” (Lang et al 2012, p. 28). Both tangible and less tangible outcomes are important. A tangible product might be an evidence-based strategy, a prototype, or a new method for data collection. A less tangible product could be enhanced awareness or an intense learning process. It is wise to be open to emerging outcomes and not to stick narrowly to the original objectives. The “centralised steering idea has to be questioned and, in many cases, be replaced by the metaphor of an ongoing learning process” (Lang et al 2012, p. 28).

The model presents the phases as a linear process. But in reality, the research process is an iterative and recursive cycle, connecting the phases according to the requirements of both problem solving and scientific innovation.

The ideal-typical model of a transdisciplinary process shows that societal outcomes are at the heart of transdisciplinary research. The question remains: what instruments do we have to maximise and better observe outcomes?

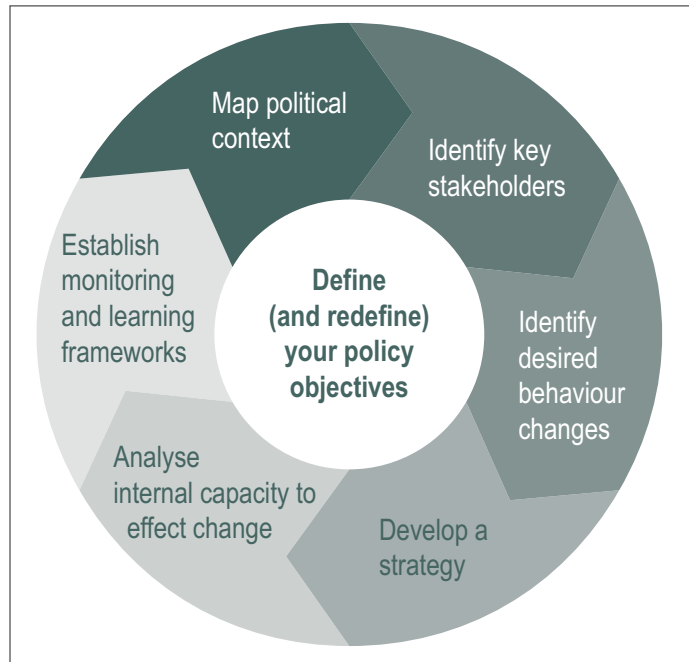
### 1.3 A novel approach to impact: the RAPID Outcome Mapping (ROMA) approach

RAPID Outcome Mapping (ROMA) is a novel approach for analysing and maximising research impact in the complex environment of developing countries (Young and Mendizabal 2009). Developed by the Overseas Development Institute (ODI) with the aim of helping researchers to engage in evidence-informed policymaking, the approach is strongly shaped by concepts of complexity. It is an adaptation of Outcome Mapping – an approach to planning, monitoring, and evaluating development projects and programmes (Carden 2009; Earl et al 2001) – and adopts many of the principles of the approach, such as the understanding of outcome as “changes in the behaviour, relationships, activities or actions of the people, groups and organisations with whom a programme works directly” (Earl et al 2001, p. 1). Outcome Mapping posits that development is essentially about people relating to each other and their environment,<sup>4</sup>

<sup>4</sup> As Annette Boaz mentions, there are multiple terms to describe research impact such as impact itself, but also outcome, benefit, payback, translation, transfer, uptake, and utilisation. We refer to the International Development Research Centre’s definition of outcomes as behavioural change. To simplify things from a language point of view, we also use the term impact. “These different terms have a shared interest in change that lies beyond the research process and its primary outputs” (Boaz et al 2009, p. 256)

and ROMA applies this to research by focusing the researcher on the non-academic partners with whom they anticipate opportunities for influence.

ROMA aids in planning strategies for influencing the behaviour of non-academic partners from the outset of a research project; it also supports continuous monitoring of results during all stages of research. ROMA provides a framework consisting of seven steps and associated tools which help researchers to gradually plan and pursue their policy objectives (Figure 2).



**Figure 2:** The RAPID Outcome Mapping Approach (ROMA). (Source: Young and Mendizabal 2009, slightly adapted. Reproduced with kind permission of the authors)

Researchers who want to maximise the impact of their research should consider the following important steps:

- **Define your policy objectives:** Researchers need to be conscious about the changes they aim to achieve. Therefore, these changes should be written down and subjected to continuous revision. Policy changes are understood in a very broad sense as discursive, procedural, content, attitudinal, and behavioural changes (Young and Mendizabal 2009). We also refer to Tim Clark who defines policy as plans and principles for action designed by and for any kind of societal actors (Clark 2002).
- **Map the political context:** What are the key factors that may influence the issue? ODI has developed an analytical and practical framework to identify these factors (Court et al 2005): the key factors of the framework are the political context, the quality and relevance of the scientific evidence, the links between various actors, and the external factors (e.g. changed international agendas, unexpected political changes in another country) that need to be considered.

- **Identify key stakeholders:** Key stakeholders are those non-academic actors whom researchers are seeking to influence. ODI refers to policy stakeholders such as parliamentarians, ministers, and policy think tanks. In the context of this study we apply a broader understanding of the term stakeholder, including all development actors such as local communities, farmers' associations, NGOs, and others. In order to identify the key stakeholders, researchers need to assess the alignment, interests, and power of stakeholders. Stakeholders who agree with the researchers' objectives, have a strong interest in the results, and a lot of power to make changes happen are very important.
- **Identify desired behaviour changes:** A central step is the formulation of a theory of change. Researchers should describe as precisely as possible the ideal behaviour of their non-academic partners that will make them progress towards the policy objectives. The description should include the short- and medium-term changes, known as 'Progress Markers'. These indicators "can be monitored to ensure that the priority stakeholders are moving in the right direction and responding to the efforts of the programme" (Young and Mendizabal 2009, p. 4). Progress Markers, mostly of a qualitative nature, show the complexity of the change process for each partner, from early positive responses through to transformative change.
- **Develop a strategy:** Based on the theory of change, researchers need to develop a strategy regarding how to exert influence on the key stakeholders. This should include the definition of activities, alliances, and milestones.
- **Analyse internal capacity to effect change:** The next step is the analysis of the researchers' competencies to implement the strategy. "Competence is an evolving set of systems, processes, and skills that enables actors to make the right decisions and act accordingly" (Young and Mendizabal 2009, p. 4).
- **Establish monitoring and learning frameworks:** Finally researchers need to monitor the changes and learn from what happens. The monitoring and learning system tracks the progress of the key stakeholders and assesses whether researchers act effectively. In addition, it supports researchers in their efforts to understand the unexpected outcomes of their activities and to adapt to the changes and gradually learn how to maximise their influence. Monitoring is a practice of generating new knowledge, questioning assumptions, planning and motivating future activities, and building analytical capacity.

In sum, the first steps of the ROMA approach suit the need to plan for impact, while the last step is about monitoring and assessing the changes.



## 1.4 Applying ROMA to transdisciplinary research partnerships in the NCCR North-South programme

The ROMA approach has been applied in the NCCR North-South programme on various occasions. The National Centre for Competence in Research (NCCR) North-South is an international programme working on the basis of development-oriented research partnerships between Swiss universities and partners in Africa, Asia, and Latin America (Hurni and Wiesmann 2010; Wiesmann and Hurni 2011). With a network of more than 350 researchers active in about 40 countries, this programme is dedicated to addressing global change and sustainable development issues. Topics such as livelihoods, institutions, conflicts, health, sanitation, economy, governance, and sustainable use of natural resources are explored.

A group of researchers of the NCCR North-South jointly reflected on the benefits and limits of applying the ROMA approach to their research projects. A webinar was held on the “Impact of Research on Policy”, facilitated by ODI staff, and results were discussed during an international conference in 2012 (NCCR North-South 2012). The post-doc research projects discussed in this context were located in Bolivia, Tanzania, Chad, Nepal, Pakistan, and Tajikistan, and the topics ranged from disaster risk management to health, migration, forest management, and mountain development. The projects were comparable despite this geographical and thematic diversity, as they had a common research design: all projects addressed socially relevant problems and involved stakeholders repeatedly and intensely in the research process; and all researchers actively worked towards achieving impacts.

Results show that the transdisciplinary approach of the NCCR North-South resonates in many ways with the goal of the ROMA approach. The transdisciplinary paradigm ensures that collaboration between researchers and user is sought, from the formulation of the problem to the analysis and interpretation of results. ROMA provides operational tools for influencing policy and practice as well as for tracking outcomes. It contributes to the goals of transdisciplinary research in particular in the phases of strategic planning of impacts and monitoring of and learning from impacts.

Tensions were also identified between transdisciplinarity and the ROMA approach. One is that the main goal of ROMA is impact while transdisciplinary research strives for various achievements, and impact is only one among these. Another is that transdisciplinarity is oriented towards co-production of knowledge among participating stakeholders, while the ROMA approach is more oriented towards effecting changes in the behaviour of the key stakeholders. These different goals need not, but may, conflict depending on the context and the stakeholders involved.

The ROMA approach motivated the researchers to reflect on how research-based evidence can inform development policy and practice. As some said, ROMA enabled them to rapidly identify their objectives in terms of influencing policy and to present key findings to policymakers in a comprehensible way. It helped them structure ideas, emphasise the role of stakeholders, and focus on outcomes. Many felt that the approach supported them in better translating research into action for the benefit of their partners.

Defining stakeholders' ideal practice of change, however, turned out to be among the most challenging steps to implement. Despite the fact that transdisciplinary researchers are trained in focusing not just on generating scientific knowledge but also on collaboration with non-academic stakeholders (Pohl 2008), and although they are used to assuming different roles when engaging with users of research results (Pohl et al 2010), many found this task difficult. What clearly emerged from our collective reflection was the need for a stronger engagement between research evaluation specialists and the academic community.

## 1.5 Outlook

This conceptual introduction is followed by six case studies that illustrate a self-reflection using the ROMA approach in the following chapters. These highlight important factors that need to be considered for progressing towards research impact. As mentioned above, the research projects are characterised by diversity: they are located in Bolivia, Tanzania, Chad, Pakistan, Tajikistan, and Nepal, and the topics range from disaster risk management to health, forest management, mountain development, and migration. All projects were conducted within the programmatic framework of the National Centre of Competence in Research (NCCR) North-South.

*Chapter two* illustrates the process of planning impact. It is a case study reflecting on the integration of a gender perspective into disaster risk management in the city of La Paz, carried out by Luis Salamanca and Jimena Freitas (both at the Universidad Mayor de San Andrés, Bolivia). The researchers' policy objective was to help key stakeholders to integrate a gender perspective in disaster risk management at the levels of the relevant law, of management, and of daily practices. The paper documents the choices made by the researchers when selecting key stakeholders and formulating a theory of change.

Three chapters then deal with a crucial step of the planning process: the selection of the right key stakeholders. *Chapter three* is about giving a voice to important but powerless stakeholders, such as youth. The research project on reproductive resilience of adolescents in Ghana and Tanzania, led by Constanze Pfeiffer (Swiss Tropical and Health Institute, University of Basel, Switzerland) and Collins Ahorlu (Noguchi Memorial Institute for Medical Research, University of Ghana, Ghana), helped young people to visualise their sexual and reproductive health realities in short films. A multi-stakeholder workshop was organised, bringing together young people and relevant stakeholders from the government, NGOs, and international donors for the first time. The paper discusses the outcomes of this workshop as well as similar activities that followed in Ghana.

*Chapter four* points out the importance of selecting the right number of key stakeholders. The research project by Mahamat Béchir (Centre de Support en Santé Internationale CSSI, Chad) and Esther Schelling (Swiss Tropical and Health Institute, University of Basel, Switzerland) aimed to improve mobile pastoralist communities' access to social services in the Sahel. Their "health of nomads" programme demonstrated the



possibility of combining health services with veterinarian services, thereby improving the health of nomads considerably. The researchers collaborated with various communities, several ministries of the Chadian governmental, and with NGOs. Researchers acted as campaigners, project managers, and agents of change. However, moving between various roles and dealing with a broad range of stakeholders turned out to be overly demanding. The paper discusses the difficulties as well as possible ways out and lessons learnt.

*Chapter five* presents lessons learnt regarding how to mediate between stakeholders. The research project by Babar Shabaz (University of Agriculture, Faisalabad, Pakistan) and Talimand Khan (Sustainable Development Policy Institute SDPI, Islamabad, Pakistan) addressed forest governance in Northwest Pakistan. Forest use in this area is driven by diverging interests. In the conflictive situation, researchers provided a neutral platform for stakeholders to meet and discuss possible solutions. The process started from the grassroots level with forest communities and later included members of the parliament, the administration, and journalists. The paper talks about how this approach encouraged forest communities to voice their own viewpoint and helped to put into perspective the widespread opinion of policymakers that common people often do not have a rational argument for policy change.

*Chapter six* is concerned with a particular difficulty in monitoring research interventions: the tracking of outcomes over the long term. The transdisciplinary research project led by Thomas Brey and colleagues (Centre for Development and Environment, University of Bern, Switzerland) aimed at drawing plausible links between a research intervention and the course of development in the Tajik Pamirs. The aim of the Pamir Strategy Project was twofold: to improve living conditions and develop a new methodological approach to mountain development. The central event of the project was a four-day multi-level stakeholder workshop that brought together 80 participants in October 2002. The participants – local communities, NGOs, and district- and national-level government bodies – were expected to later integrate the results and approach in their institution. Chapter six describes the limits and potential of a review 10 years after.

Finally, *Chapter seven* provides a reflection on academic research from the point of view of impact creation. The research project led by Anita Ghimire (Nepal Center for Contemporary Research, Kathmandu, Nepal) focused on ‘Migration and Development’ and examined the role of returnee students in making positive changes in Nepal. One of the major questions was to understand how to enhance the environment in such a way that students who returned after completing their education abroad could use their knowledge and skills in Nepal. The paper talks about how the ROMA approach was applied to the project and how it influenced the researchers and other stakeholders involved to think differently about how to make a difference.